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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,531	10/26/2001	Ken A. Nishimura	100100321-1	2565
57299	7590	01/12/2006	EXAMINER	
AVAGO TECHNOLOGIES, INC.			LEE, DAVID J	
P.O. BOX 1920			ART UNIT	
DENVER, CO 80201-1920			PAPER NUMBER	
			2633	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/007,531	<b>Applicant(s)</b> NISHIMURA ET AL.	
	<b>Examiner</b> David Lee	<b>Art Unit</b> 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 29-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 29-47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 29, 38, and 41 recite in part, “a first pair of beams that is used to perform time-domain equalization of the light pulse” and “using the first pair of beams to perform time-domain equalization of the light pulse.” The specification fails to disclose how time-domain equalization is performed by merely “using the first pair of beams” and thus fails to enable one skilled in the art to use the invention.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 29, 34, 35, 38, 39, 41, 42, and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Sorin et al. (US Patent No. 6,256,103).

Regarding claims 29 and 38, in view of the 112 rejection above, Sorin teaches a system for performing time-domain equalization, the system comprising: a beamsplitter configured to split a first optical signal comprising a light pulse into a plurality of beams (820 of fig. 8); a delay component optically coupled to the beamsplitter, the delay component configured to delay at least a first beam in the plurality of beams (the noise reducer of fig. 17 can be utilized in the system, which includes delay unit 1794); a birefringent component configured to receive the delayed first beam from the delay component and operable to rotate a polarization plane of the first beam (half-wave plate 1796 of fig. 17); and a walk-off crystal configured to receive the rotated first beam and operable to split the rotated first beam into a first pair of beams that is used to perform time-domain equalization of the light pulse (824 of fig. 8).

Regarding claim 34, Sorin teaches that the rotation of the polarization plane determines the intensity of beams in the first pair of beams (see 1796 of fig. 17: depending on the intensity distribution, rotating the plane will produce different intensities).

Regarding claim 35, Sorin teaches an array of photodetectors comprising a first pair of photodetectors configured to receive the first pair of beams (i.e. – see 212 of fig. 2).

Regarding claim 39, Sorin teaches providing a control for controlling the rotation of the polarization plane of the first delayed beam (i.e. – see polarization controller 120 of fig. 1).

Regarding claim 41, in view of the 112 rejection above, Sorin teaches optical delaying a second beam in the plurality of beams (1792 of fig. 17); rotating a polarization plane of the

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delayed second beam (1796 of fig. 17); transmitting the rotated second beam through the walk-off crystal to produce a second pair of beams (828 of fig. 8).

Regarding claim 42, Sorin teaches generating a first pair of electrical signals by detecting the first pair of beams (i.e. – detectors 712 of fig. 7); generating a second pair of electrical signals by detecting the second pair of beams (detectors 712 of fig. 7); and combining the first pair of electrical signals and the second pair of electrical signals to generate an electrical signal corresponding to the light pulse (716 of fig. 7).

Regarding claim 44, Sorin teaches predetermining the imparted rotation of the polarization plane of the delayed first beam (1796 of fig. 17 imparts a 90 degree rotation).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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6. Claims 33, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorin.

Regarding claim 33, Sorin does not specifically disclose that the birefringent component comprises an array of liquid crystal cells. Examiner takes official notice that the use of liquid crystal cells is well known and widely used in providing polarization rotation in birefringent components. It would have been obvious to a skilled artisan at the time of invention to use liquid crystal cells in the birefringent component in order to provide accurate and efficient polarization rotation.

Regarding claims 36 and 37, Sorin does not expressly disclose that the first optical signal originated from a polarization splitter. However, examiner takes official notice that polarization beam splitters in network configurations are well known in the art. It would have been obvious to a skilled artisan at the time of invention to include a polarization beam splitter to transmit signals to their desired destinations. Note that the polarizations of split signals can be configured to have different polarizations.

7. Claims 30 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorin in view of Epworth (US Patent No. 6,271,952).

Regarding claims 30, Sorin teaches the limitations of claims 29 but does not expressly disclose a control system configured to control the birefringent component for rotation of the polarization plane of the first beam, wherein the rotation provides an optical scaling of the delayed first beam. Epworth, from a similar field of endeavor, discloses a birefringent component configured to rotate a polarization plane of a beam (6 of fig. 2) and a walk-off crystal

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configured to receive the beam and split the beam into a first pair of beams (8 of fig. 2), further comprising a control system (10 of fig. 2) configured to control the birefringent component for rotation of the polarization plane of the first beam wherein the rotation provides an optical scaling of the delayed first beam (see col. 5, lines 16-30). It would have been obvious to a skilled artisan at the time of invention to use the control system of Epworth to control the birefringent component of the beam in the system of Sorin in order to increase signal quality and provide flexible rotation coefficients.

Regarding claim 43, the combined invention of Sorin and Epworth teaches the limitations of claims 30, 33, and 38, but does not expressly disclose that the birefringent component under control is an array of liquid crystal cells. Examiner takes official notice that the use of liquid crystal cells is well known and widely used in providing polarization rotation in birefringent components. It would have been obvious to a skilled artisan at the time of invention to use liquid crystal cells in the birefringent component in order to provide accurate and efficient polarization rotation.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DL

  
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